

200309810-1

RECEIVED  
CENTRAL FAX CENTER

10/696,330

APR 02 2008

IN THE CLAIMS:

The status and content of each claim follows.

1. (original) A method for solid free-form fabrication of a three-dimensional object, comprising:

depositing a particulate blend in a defined region, said particulate blend including radical source particulates, polyacid particulates, multivalent cation particulates, and calcium phosphate source particulates;

ink-jetting a liquid phase binder onto a predetermined area of said particulate blend to form hydrated cement in said predetermined area, wherein said liquid phase binder is acidic and includes reactive monomers; and

setting said hydrated cement.

2. (original) The method of claim 1, further comprising removing a portion of said particulate blend that does not form said hydrated cement.

3. (original) The method of claim 1, wherein said setting said hydrated cement further comprises:

performing a polymerization setting reaction;

performing an acid/base setting reaction; and

performing a re-precipitation setting reaction.

4. (original) The method of claim 1, wherein said reactive monomers comprise one of 2-hydroxyethylmethacrylate or 2-hydroxybutylmethacrylate.

200309810-1

10/696,330

5. (original) The method of claim 1, wherein said radical source particulates comprise one of benzophenone or an ultraviolet/blue light initiator.
6. (original) The method of claim 5, further comprising radiating said hydrated cement with ultraviolet light.
7. (original) The method of claim 1, wherein said polyacid particulates comprise one of polyacrylic acid (PAA), polyvinyl pyrrolidone-co-maleic acid, or polyethylene-co-methacrylic acid.
8. (original) The method of claim 1, wherein said multivalent cation particulates comprise one of calcium (2+) or aluminum (3+).
9. (original) The method of claim 1, wherein said calcium phosphate source particulates comprises one of mono-calcium phosphate, di-calcium phosphate, tri-calcium phosphate, or tetra-calcium phosphate.
10. (original) The method of claim 1, wherein said liquid phase binder further comprises one of phytic acid, itaconic acid, diglycolic acid, or phosphoric acid.
11. (original) The method of claim 1, wherein said liquid phase binder further comprises multifunctional monomers including glycol dimethacrylate.

200309810-1

10/696,330

12. (original) The method of claim 1, wherein said particulate blend further comprises reaction accelerators.

13. (original) The method of claim 12, wherein said reaction accelerators comprise one of tartaric acid, citric acid, glutamic acid, diglycolic acid, DL aspartic acid, iminodiacetic acid, itaconic acid, or  $\text{NH}_4\text{H}_2\text{PO}_4$ .

14. (original) The method of claim 1, wherein said particulate blend further comprises strengthening agents.

15. (original) The method of claim 14, wherein said strengthening agents comprise nanocomposites.

16. (original) The method of claim 15, wherein said nanocomposites comprise one of PEO/clay nanocomposites, hydroxyapatite nanocomposites, layered double hydroxide (LDH) nanocomposites, or organophillic nanocomposites.

17. (original) The method of claim 1, wherein said liquid phase binder comprises colorants.

200309810-1

10/696,330

18. (original) The method of claim 1, wherein said aqueous binder comprises water, organic acid, water soluble acrylic monomers, mineral acid, catalyst, dye colorants, pigment colorants, pyrrolidone, 1,5-hexanediol, liponic ethylene glycol, and surfynol 465.

19-51. (cancelled)